



# TRANSMISSION INVESTMENT ANALYSIS



Supporting Public Power, Cooperatives, and Independent  
Developers in Analyzing Economic Value and Risk

A large, stylized graphic of double quotation marks in a light teal color, positioned at the top of a white rectangular text box. The background of the entire page is a faded image of high-voltage power lines and towers against a light sky.

“ ”

MCR takes complicated concepts and presents them in a way that's **easily understood by our board** of directors, who are not immersed in the transmission industry. MCR has a confidence when presenting in front of others and that comes from knowing the business, which is quite valuable.

—Transmission Planning Manager



# TRANSMISSION INVESTMENT— HOW VALUABLE IS IT?

With the recent surge in transmission investment being proposed, our cooperative, public power, and independent developer clients are all asking the same two questions: I know investing in transmission tends to be good, but how much value does it really provide for our members/customers/owners, and how do I manage the risk?

Over the last decade MCR has analyzed the economic value and risk of more than 25 proposed transmission projects for 15 clients. We use our Transmission Project Evaluation Model™ to evaluate transmission projects in joint pricing zones, including key metrics such as net present value (NPV), breakeven cumulative NPV, and annual transmission revenue requirement (ATRR), reflecting the cost allocation elements unique to each project and various project financing scenarios. We conduct sensitivities on key assumptions such as financing mix (debt vs. equity) and debt term to assess the risks on the key metrics.

MCR helps our clients answer the following types of questions about its proposed transmission projects:

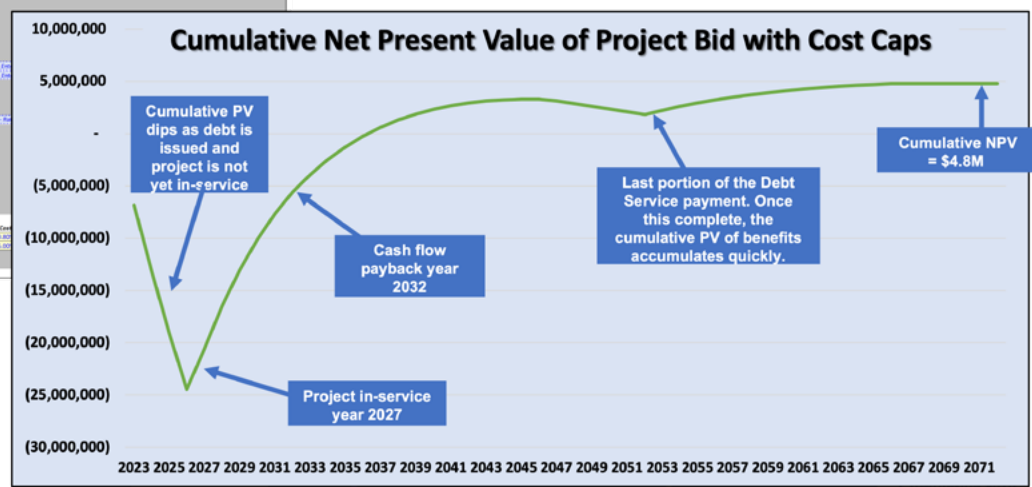
- **How valuable is this project** to our members/customers/owners? To what extent does it help mitigate rising zonal and regional transmission rates?
- **What is the optimal mix** of equity and debt financing, and what term of debt makes the most sense? What is the ATRR impact on the existing transmission formula rate (i.e., the MISO Attachment O or the SPP/PJM Attachment H)?
- **What is the impact** on the key metrics if we are approved by FERC for a hypothetical capital structure and/or construction work in progress in rate base?
- **What are the risks** associated with the project and how can they be managed? In what year will the project produce positive cash flows?
- **Under what set of assumptions** does this project “go south”? What is the probability of a bad economic outcome?

We conduct sensitivities on key assumptions such as financing mix (debt vs. equity) and debt term to **assess the risks on the key metrics.**

For clients bidding on competitive transmission projects, MCR's Competitive Transmission Evaluation Model™ evaluates the project's economics and risks through its ability to model capital, O&M, and ATRR cost caps. We work with our clients to develop the appropriate bid strategy to win the project, including helping to answer the following types of questions:

- Given a set of cost cap assumptions, what is the project's ATRR, NPV, and internal rate of return? What happens to these metrics at different levels of cost overruns? At what level of capital cost overrun does the project produce negative value?
- Given recent competitive bids, what cost caps are necessary to win the project?
- How can we provide cost or ATRR caps while still managing the risk of cost overruns?
- Should our bid strategy include transmission rate incentives?
- What is the return to investors under different debt, equity, and holding company leverage assumptions?

Project Bid Input Screen	
A. Project Information	
Project Construction Start Year	2019
Years to be Modeled after Start Year	20
B. Modeling Years	
Modeling Years	2019-2042
C. Return on Equity (ROE) earned in Annual Transmission Revenue Requirement	
Return on Equity (ROE)	5.50%
D. Debt Issuance / Cost	
Debt Issuance Year	2019
Debt Issuance Term	20
Interest Rate on Debt	4.50%
Project Capital Cost Cap at Amount	115,000,000
Actual Capital Cost (assumes 100% financed including amount over cap)	115,000,000
Revenue Requirement (included in financial amount)	
Revenue Cost (included in financial amount)	
Total Debt Issued	115,000,000
E. Property Tax	
% of GRI subject to Property Tax Rate	100.00%
Tax Rate	1.00%
F. O&M and A&G Expenses (and Caps)	
Actual O&M (as % of GRI)	3.00%
O&M Cap (as % of GRI)	3.00%
Actual A&G (as % of GRI)	3.00%
A&G Cap (as % of GRI)	3.00%
Annual Inflation Rate Assumed for O&M	3.00%
Annual Rate	2019
Beginning Year	2019
Annual Inflation Rate Assumed for A&G	3.00%
Annual Rate	2019
Beginning Year	2019
G. CMP in Rate Base Switch	
AFUDC Rate	4.00%
H. Tax Rate	
Federal	21.00%
State	27.00%
Adjustment for ETR for ITC and Other	-2.00%
Tax Rate for Revenue Requirement	26.00%
I. Weighted Average Cost of Capital	
Capital Structure	Equity
Equity	50.00%
Cost	8.00%
Debt	50.00%
Cost	4.50%
J. Discount Rate	
Discount Rate	4.50%





## CLIENT STORY

### How MCR Helped a G&T Cooperative Evaluate a Proposed Transmission Investment

#### Background

A generation and transmission (G&T) cooperative was considering investment in a highly visible regional transmission project that had complicated cost allocation methods. The client asked MCR to lead their team in conducting an analysis of the economics of the project and whether there was sufficient value for its members.

#### Solution

MCR led the client's working team through a series of meetings designed to identify key assumptions of the analysis, including the cost allocation assumptions, and to review the results of the analysis. MCR's Transmission Project Evaluation Model™ was used to conduct the analysis, which included Monte Carlo risk analysis, to contemplate varying levels of key inputs, such as the equity ratio from a potential hypothetical capital structure.

The analysis showed there was substantial net present value to the G&T's members of investing in the project, under all relevant ranges of assumptions and financing assumptions. Alongside our client, MCR presented the analysis results to our client's Project Review Committee, Executive Review Committee, Distribution Cooperative Managers Committee, and ultimately its board of directors.

#### Results

Using the results of the analysis, our client helped change the mindset in the company to one that more actively supported transmission investment. By proceeding with the regional transmission project, our client increased reliability and created incremental value for its members.

# ABOUT MCR'S TRANSMISSION STRATEGY PRACTICE

MCR provides transmission strategy support to joint action agencies, G&Ts, municipals, public power districts, T&D cooperatives, and independent developers in various RTOs. Our clients have a goal of optimizing the value of their current and future investments in electric transmission. We help them realize the full revenue potential from these transmission assets.

MCR's Transmission Strategy Practice provides the following services:

## Transmission Formula Rate Analysis

- Formula Rate Review for Existing Transmission Owners
- Development of ATRR for Transmission Owners
- Review/Challenge to Incumbent IOU Formula Rate Costs
- Staff Education Workshops on Transmission Formula Rates

## FERC Filings

- Transmission Incentive Rate Filings and Testimony
- Section 205 Rate Filings – Cost of Capital Testimony
- Section 205 Rate Filings – Formula Rate Support and Testimony
- Intervention and Settlement Support

## Strategic Economic Analysis

- Economic Evaluation of New Transmission Projects
- Support of Competitively Bid Projects
- Development of Transmission Strategic Business Plans
- Valuation of Potential Asset Purchase/Sale and Resulting Rate Impacts
- Analysis of Joint Zone Investment, Pricing Agreements, and 7-Factor Tests
- RTO Membership Evaluation

## Transmission Cost/Rate Competitiveness

- Peer Cost Comparison by FERC Account
- Rate Strategy and Transmission Revenue Forecasting
- Transmission Capital Investment and Metric Comparisons

**Through our consulting assignments, MCR has created tens of millions of dollars in value for our clients and broken new regulatory ground for our client base with landmark FERC decisions.**

# MCR'S TRANSMISSION STRATEGY PRACTICE LEADERSHIP



**Jim Pardikes** is a Vice President at MCR and leads the Transmission Strategy Practice. Jim has 38 years of experience consulting to the utility industry. His expertise includes incentive filings, expert cost of capital testimony, Section 205 rate filings, project evaluation, asset valuation, and strategic planning. He regularly presents to boards and senior teams and has written extensively on the drivers of transmission investment. Jim can be reached at 847-504-2549 (office), 847-226-2084 (mobile), or [jpardikes@mcr-group.com](mailto:jpardikes@mcr-group.com).



**Ron Kennedy** is a Director with MCR. Ron has over 23 years of experience in consulting to the utility industry. His expertise includes formula rates, Section 205 rate filings, rate incentives, evaluation of RTO membership, asset valuation, asset eligibility, and financial evaluation of transmission projects. He is experienced in presenting to executive teams and boards of directors. Ron can be reached at [rkennedy@mcr-group.com](mailto:rkennedy@mcr-group.com).



**John Simpsen** is a Lead Consultant with MCR. He has eight years of experience consulting to the utility industry, nearly all focused on transmission. His expertise includes expert revenue requirements testimony for Section 205 filings, competitive bid projects, expert witness testimony for transmission revenue requirements in ERCOT and invested capital updates, Section 205 filings at FERC, and developing wholesale electric rates for utilities. John can be reached at [jsimpsen@mcr-group.com](mailto:jsimpsen@mcr-group.com).



**Nikhil Tarlapally** is a Consultant with MCR. Nikhil has seven years of utility experience. With MCR, he has worked on numerous modeling projects that evaluated the economics of proposed transmission projects, both non-competitive and competitive. He has also supported incentive rate FERC filings and the development of MCR transmission white papers. Prior to MCR, Nikhil worked for a major IOU, and his duties included financial forecasting and the economic analysis of various generation and renewables projects. He has also supported rate case filings, provided multi-year revenue requirements analyses, and reviewed testimonies. Nikhil can be reached at [ntarlapally@mcr-group.com](mailto:ntarlapally@mcr-group.com).



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